GOODBYE UGLYVILLE, HELLO PARADISE: TELEWORKING AND URBAN DEVELOPMENT PATTERNS

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For some people the defining moment is a car breaking down in a blizzard on the way to work, the third burglary or perhaps the first mugging. For others, it is the long, long crawl to the office when the soothing tape deck can't compensate for an over-stressed bladder. Cold, crime, congestion. All have a jarring impact on the exasperated, the frustrated, the frightened and the just plain angry.

They wonder: Can we stretch our vacation at a balmy resort by weeks or months when the wind-chill factor at home hits ten below and lingers? Can we avoid the morning rush hour? Could we live in a green place far out in the country, safe from street thugs and the need for three dead bolts and a stranger-averse dog?

A few years ago, the answer would have been "not likely." Work was cemented in an office, 9 to 5; the daily commute only a half hour off peak but close to an hour drive in rush hour traffic. Now new technology and new approaches may bring liberation. The new technology is the computer.

Today employers throughout the nation are encouraging—and sometimes forcing— people to work at home (or at least out of the office) because through the computer they can save on employee office and parking space and on time formerly spent commuting that can be put to better use. At the same time employers can retain valued home-bound employees while closely supervising computer-based output.

How Many, How Much on the Way?

There are two ways to look at the impact of telecommunications technology. The narrow view is to focus on telecommuters. The broader perspective includes the self-employed teleworkers who use this technology as an adjunct to the mail and telephone.[1]

The US Department of Transportation estimates that there were two plus million telecommuters in 1992 who were telecommuting on an average of 1-2 days per week. This represented only 1.6 per cent of the labor force, far below other estimates. By 1994, the number of corporate employees who telecommute rose from 2.4 million in 1990 to 6.6 million.

[1] Office of Technology Assessment, The Technology Reshaping of Metropolitan America, (Washington, US Government Printing Office, 1995), pp.165-166.

By 2002 Department of Transportation (DOT) predicts that the total number of telecommuters will reach 7.5 to 15.0 million people telecommuting an average of 3-4 days per week. This amounts to 5 to 10 percent of the labor force in 2002.[2] Another estimate is that the figure will climb to 11 million by 2000. If self-employed workers are included, these numbers rise by 25 to 30 per cent or about one worker in every nine or ten.[3] A more optimistic estimate puts the upper level at 25 million by 2002 or possibly one in six workers.[4]

Another estimate, based on a combination of government and corporate statistics is that 39 million people (roughly a third of the work force) already do some work out of their homes. Of this total almost 24 million operate home businesses, half full time, half part time. An estimated 6.6 million are home telecommuter employees who work at the office from half-a-day to two days a week. The remainder 8.6 million, work at home after office hours. Many are only a short distance away from some telecommuting.[5]

How fast is the number of teleworkers growing? The Southern California telecommuting partnership puts the nine month gain in Southern California in 1996 at an astounding 11 per cent. There is a special factor in this area: "Nine out of ten people who started telecommuting after the Northridge earthquake still do it."[6]

How Much? How Many? Other Estimates

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[2] Ibid, p.170.

[3] Ibid

[4] Jack Nilles, JALA International, Inc. "Telecommuting Forecasts," Los Angeles, CA. 1991, cited in Office of Technology Assessment, p.170.

[5] Richard Nelson Bolles, The 1996 What Color is Your Parachute? (Ten Speed PressBerkeley, 1996), p.115

[6] Karen Kaplan, "For Workers, Telecommuting Hits Home," Los Angeles Times, July 29, 1996, p. D7

As the data suggest, there is no consensus on the number of people who work full time or part time at home let alone those who avoid the downtown commute by working in small suburban office centers. In mid-1996 a *New York Times* story reported that

> As many as 40 million people work at least part time at home with about 8,000 home- based businesses starting daily... some 1.5 million claimed deduction...on their tax returns for 1993. [7]

[7] Jon Nordheimer, "You Work at Home Does the Town Board Care?, The New York Times, July 14, 1996, P.1. Sec.3.

The ten places with the highest percentages of residents who work at home include cities as well as upscale, high tech suburban areas ranging from San Diego and Manhattan to Beverly Hills, Bethesda, Berkeley, Austin, Greenwich, Ct., Santa Monica and Calabasas/101 Freeway, CA. The percentages range from 5.2% to 9.4% of the work force. But this does not mean that these people are all out of the commuting loop. Only about two-fifths are either full time self employed or do all of their work from home. The majority are part-time self-employed or employees who do work at home after hours.[8] Hence the small number of claimants who can meet stringent IRS criteria for office deductions.

The ranks of telecommuters—or more accurately teleworkers (if we include the self-employed) have been burgeoning thanks to a basic change in the US employment pattern. This is the shift to temporary and part time work that reached record levels in 1994. More than one-fifth of the nation's work force—24.4 million Americans—had only part time or temporary work. Construction, mining and manufacturing where wages averaged from $530 to $630 a week, were shrinking, while service and retail businesses where the pay averaged from $200 to $370 a week were growing.[9] This may be bad news for many once secure workers.

Time magazine adds its version of a total number 3 million US employees (as of 1995) telecommuting full or part time; the number growing at a phenomenal 20 per cent per year.[10] Clearly, a 10 or 20 percent annual gain in telecommuters is unlikely—unless we take into account the part timers, who make up a major share of the total. This estimate is based on a minimalist definition, i.e.,

> ...someone who works from home as little as one day a month, during usual business hours...that telecommuters work at home an average of 39.6 hours a month—or only about 12 weeks a year—means that most work is still done at the company office.
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> Chiat Day, an advertising agency, has replaced offices and filing cabinets with couches. Given their druthers, almost half the staff telecommutes from home or the road via pager, cellular phone, computer and modem. There is a 'concierge desk' where employees can book an office, pick up a laptop computer and portable telephone. One vestige of old times is conference rooms. Paper "has

[8] Ibid, p.10, sec.3

[9] Hedrick Smith, Rethinking America (Random House, New York),1995 p.210

[10] Time ,"Special Issue, Welcome to Cyberspace," Spring 1995, p.37.

all but vanished" in favor of messages on personal computer screens.. The homey collection of photos, plants and

> souvenirs once found on and around private desks and offices are gone; personal effects are stowed in employee lockers.[11]
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> As Jeremy Rifkin writing in The Nation states Automated technologies have been reducing the need for human labor in every manufacturing category. Now, however, the service sector is also beginning to automate In the banking, insurance and wholesale and retail sectors, companies are eliminating layer after layer of management and infrastructure, replacing the traditional corporate pyramid and mass white-collar work forces with small, highly skilled professional work teams, using state-of-the-art software and telecommunications technologies. Even those companies that continue to use large numbers of white-collar workers have changed the conditions of employment, transferring workers from permanent jobs to "just in time" employment, including leased temporary and contingent work, in an effort to reduce wage and benefit packages, cut labor costs and increase profit margins.[12]

All told, at least 80 per cent of all employed persons will probably not be awarded the flexibility in routine and location resulting from advances in telecommunication.

For those in the remaining 20 per cent there will be more flexibility. College professors are one historically autonomous group, predating the computer, a profession famous for flexible hours and independence. Writers and artists supported by their profession would also fall in this category. What is new is the increasing numbers of back office staff of computer programmers, researchers, management analysts, financial staffers and marketing personnel who are now working away from central offices or who can and will be doing so in the course of the next decade.

Even at that some of this group are optional. Travel agents, word processors, legal assistants, some engineers and scientists, business entrepreneurs, bill collectors and many others can work out of their home or away from the central office at least part of their time or enough to get on an extra day or two at home or to avoid peak hour travel.

In short, it is not either/or, professors vs sanitation workers, traveling salesmen vs the assembly line.

The predicted world of rich knowledgeable workers and poor service workers will have many exceptions. There will still be affluent plumbers, and well-paid specialists in foreign car repair and restoration of old masters. One question is whether underpaid, disaffected, low-skill workers will

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[11] Ibid, pp.38-39

[12] Jeremy Rifkin, "Civil Society in the Information Age," The Nation, Feb. 26, 1996, p.11.

become a breeding ground for civil disorder? We know that the marginals, the dysfunctional underclass, is the source of serious social ills. The question is whether the equivalent of the displaced bank teller, the army of minimum wage retail order takers and product baggers, the ex-draftsmen, telephone operators, stenographers, laborers and others scrambling for a bare living will become a legion of resentful *lumpen*, open to conspiracy theories and xenophobia.

Corporate Teleworking from Privilege to Mandatory Requirement

One stimulus to telework is the Clean Air Act which started in November 1994 mandating in 13 highly populated regions that firms with 100 plus employees at one site must submit and implement plans for reducing peak hour commuter traffic. However, the real thrust comes from economic, not environmental or personal gratification incentives. The key is reduced costs for office and parking space as more employees are shifted out of the head office plus there is the promise of increased, easily monitored productivity by cutting back on wasted commuting time and office distractions.

It is clear that the numbers of volunteers is being overtaken by conscripts; employees ordered to work at home or at an off-site center. The trend toward mandatory teleworking picked up steam in the mid-1990s.

Business Week estimates that 83 per cent of US companies are now embracing alternative office strategies. The American office is evolving rapidly in two directions. The first is reorganizing workspace for those employees "who must still work in offices" and the second is "shoving everyone else out the door."[13]

To critics who fear isolation of employees and loss of control by management, there are three responses:

First, measurements of output and productivity are often easier to assess when the work goes over the computer. Pretend-work is harder to generate in the homebased office than in headquarters with its froth of meetings and memos. One of the reasons that corporations are so readily taking to the practice is the belated discovery that its usually easier to keep tabs on telecommuters than on office staff.

Second, the loss of personal contact is exaggerated. Serendipitous encounters around the water cooler and the coffee machine are still operative. Why? Most telecommuters do not stay away all the time. Frequent office lunches, morning or afternoon meetings still take place. Remember, telecommuters are classified as such if they work outside the head office one day or more a week. Most are at the central office at least one or two days a week.

Third, as telecommunications bandwidths and process costs decline, we will see more

[13] "The New Workplace," Business Week, April 29, 1996, p.109.

videoconferencing, virtual meeting places and, very soon, two way visuals. A decade hence we may have three dimensional holograms which offer a reasonable facsimile of face-to-face encounters.

It would seem that telecommuting would be the medium of choice for employees at the big firms like IBM, AT &T and other giants with their sophisticated management style in general and cost containment interests in particular. In sheer numbers, however, the ranks of at home workers who are telecommuting employees are far overshadowed by entrepreneurs. What has happened is small businesses that once relied on mail and telephone have tapped into the potential of telecommunications technology that provides speed and flexibility.

Telecommunications technology gives added impetus to a decades-long trend in the growth of the self-employed.

The May 1991 Current Population Survey reported approximately 20 million non farm employees working at home as part of their primary job, i.e., about one worker in six.

> Most home-based workers (24.3 percent) are in marketing and sales, 14.9 percent in contracting, and 13.2 percent are in mechanical and transportation, collectively accounting for more than half of all the respondents in the study. Some 12 percent of the occupations are in the services, which include home child care; elder care; processing vegetables for McDonald's, crafts and a variety of endeavors related to the arts, such as composing, film producing, graphic designing, and creating greeting cards; and professional work in education, finance, government, health, law, religion and science. Less than one percent of the job titles are computer related. On average, home workers are 35 or older. More are married rather than single, business owners rather than wage earners, and most work full time. On a mean scale, they have received 13.9 years of schooling, more than is typical of workers in the traditional workplace.[14]

About half the home workers were full timers, a quarter were in marketing and sales, a sixth in contracting and an eighth were truck drivers or in other transportation. Only six percent were employed in clerical and administrative support and about one in eight was a craftsman or artisan, most of them presumably part timers. Interestingly, the average home-based business owner earns about a third more than the average wage earner and there are other advantages.

[14] Ibid, p.16.

> At-home work can increase profits by decreasing operating expenses, and eliminates hours spent on the road and away from home. Federal tax regulations allow self-employed home-based workers to shelter profits under reinvestment, retirement, and other plans. New technology, a growing pool of temporary workers, and new home-based support services that provide everything from document archiving to conference space are making home-based work more 'professional', more affordable, and more appealing.[15]

One of the unexpected findings of the mid-1990s surveys is the high percentage of city workers who work out of their homes; teleworking is not just for suburbanites.

% WHO LIVE & WORK AT HOME

Downtown San Diego, CA		9.4
Midtown Manhattan, NY		7.1
Downtown Manhattan, NY		7.0
Century City/Beverly Hills, CA	6.4	
Bethesda/Chevy Chase, MD		6.1
Austin Downtown, TX	6.0	
Berkeley, CA		5.5
Greenwich, CT	5.5	
Calabasas/101 Freeway, CA		5.2
Santa Monica, CA		5.2

Home Office Computing, Nov. 1996, p.24.

Surveys reveal another interesting finding the data appear to demonstrate a strong gender difference. Two thirds of home businesses are owned by women. By category the largest single home business category is business support services followed by desk top publishing, consulting and retail sales from home. All told, these four sectors account for almost two thirds of the total.[16]

The seers who follow the great American tradition of looking optimistically into the future after each new invention have greeted telecommunication as the pathway to all sorts of joy to come. Following the yellow brick road to Oz will find the elderly, the frail and the disabled granted the gift of mobility and employability. Persons trapped at home as care givers for the elderly or young children will be able to hold part time or full time jobs. Everyone who can pay the small entrance fee for the

[15] Ibid, p.18.

[16] Home Business News Report, PT Corp, 1996.

requisite equipment can enter a fascinating world of entertainment, information and constant contact with friends, relatives, colleagues and fellow members of and interest groups.

In the late 1990s, the pattern is pretty much a matter of current computer-phone-fax technology. The publication, *Home Business News Report*, sees elaborate video conferencing rooms giving way to desktop conferencing but does not speculate on the significance of universal visual communication.[17]

In short, up to the early 1990s telecommuting was seen as a kind of rare privilege granted to self-disciplined employees who could make a convincing case for leaving an empty desk at the office. Increasingly, it is the employer who insists and the employee who must accede. For example, aggressive telecommuting programs at Pacific Bell resulted in one quarter of the 19,000 workers telecommuting at least one day a week, and similar efforts were under way at Compaq, Perkin-Elmer and Hewlett Packard. These are all leading-edge firms based in California. When the Los Angeles earthquake added to chronic peak hour traffic congestion, it spurred the trend toward structured programs aimed at cutting corporate operating costs. Companies have decided to reduce office costs, parking spaces, motor pools and lost travel time by ordering employees—usually beginning with the sales department—to work away from the central office. It is noteworthy that Denver's travel reduction program, TRP 2000, aimed at "squeezing every nickel" teaches management teams to save money with innovative work strategies.

The city and county of Denver's three day certificate program advertises that "its graduates include executives from life insurance, airlines, utilities and other firms." Managers should be "work product-oriented." Benefits include retraining valued trained employees, reductions in office space, "happier, lower stressed employees in terms of medical costs, sick days, absenteeism and burnout..." The brochure for the program asserts, "Telecommuting is a win-win-win concept...." It further states, "telecommuters are happier and more productive as are their families, their employers benefit from economic and efficiency gains and their community infrastructure is helped by their presence."[18]

Xerox has its virtual sales office program for sales reps in its southwest sales and marketing territories. Xerox sales reps have been given the tools that largely eliminate the need to come into the office. Instead district offices will act as business hubs used by roving employees. [19]

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[17] Ibid, p.117.

[18] Ibid

[19] Deborah Lewis, "Telecommuting Round Two-Voluntary No More," Forbes ASAP, Oct.9, 1995, pp.133-134.

One basic incentive is available to the draftees. While the volunteer telecommuters willingly assumed the costs of equipment for home offices, the employers pay the expenses for the new breed of conscripts. This can include office furniture, computer, printer, software and fax and one or two extra phone lines. Why two? One is for checking e-mail, faxes and connecting to home office computers and the other is for business voice calls. Hewlett Packard supplies telecommuters with duplicates of home office UNIX workstations. The cost approximately $4,000 per year per employee. The payoff, more productivity. [20]

Perkin-Elmer offered substantial incentives for its sales and service engineers when it consolidated its outlying sales offices into seven. Each employee received a laptop computer with modem, two telephone lines and a $1,000 furniture allowance.

Hewlett-Packard offers the telecommuter alternatives to an increasing number of non "field" staff like design engineers who need blocks of uninterrupted time transcending standard office hours.

Given huge cost savings from reduction in office space needs, large firms have begun to leap into telecommunication technology, a trend that is beginning to have an impact on federal employees (state and local are a decade behind).

The world of work is changing fast, choices about where to live and work are increasing by quantum leaps, particularly as technology-oriented boomers move up to senior management status.

Mokhtarian suggests that the 8.2 million telecommuting employees in 1995 could be substantially increased were it not for manager unwillingness. The estimate of 16 percent of the US labor force that can telecommute shrinks to only 6.1 percent partly because of this employer resistance. In real terms, given the 1-2 a week typical telecommuting pattern, this translates into a minor 1.5 per cent reduction in highway travel. It seems to be likely that manager resistance is replaced by manager insistence. To accelerate the move out of expensive headquarters office space, the trend toward teleworking will accelerate with significant impact on travel and land use patterns.[21]

By the mid-1990 's services can be provided by countries thousands of miles apart as the transmission of information will permit and indeed foster enormous changes. Proximity is no longer a given. Possibly, the pressure for opportunity-driven migration from third world nations will diminish as professionals can remain in place while working for a far off first world corporation. On the other side of the world, skilled professionals in advanced nations will find themselves under siege by lower-paid third world competitors. And in rural and remote areas in the first world telecommunications may open up opportunities for local professionals and migrating workers from big cities.[22] The prescription cannot

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[20] Ibid, p.138.

[21] Patricia L. Mokhtarian, "A Synthetic Approach to Estimating the Impacts of Telecommuting on Travel," paper prepared for the TMIP Conference, Williamsburg, VA, Oct.27-30-1990.

[22] "The Revolution Begins, At Last," The Economist, Vol. 336, No. 7934, Sept.30, 1995, pp.15, 16.

be made generic. The key issue will be the relative attractiveness of local amenities. A staggering number of communities offer very little for people with wide residential options.

The Economist foresees a world where the "death of distance" will mean that

> ...any activity that relies on a screen or a telephone can be carried out anywhere in the world. Services as diverse as designing an engine, monitoring a security camera, selling insurance or running a secretarial paging service will become as easily exportable as car parts or refrigerators.[23]

Among the "glimpses" of the world of the future, we see India attracting back-office work from Swiss Air and British airways as well computerized monitoring for monitoring air conditioning, lighting, and lifts elevators in Singapore, Malaysia, Sri Lanka and Taiwan.[24]

None the less, most people have no choice. They have the kind of job that makes it impossible or unlikely to avoid the traditional 9 to 5 routine. It's not just assembly workers who have to be there; nurses, attendants, cashiers, most retail sales clerks, janitors, waiters and cooks, gardeners, policemen and firemen, doctors, carpenters and teachers, mechanics, farmers, miners, fishermen, and receptionists have to be there in person at regular hours.

Telecommunications and the New Urbanism

The telecommunications revolution links economic activities that don't have to be in physical proximity. It offers more freedom to choose where people work, live and go for recreation. The big question facing US urban areas in the next generation is: where will people choose?

We must also take into account that many other factors are at work. For example, retail and wholesale trade may be considerably changed via home shopping but it is likely that the advent of the big boxes—Walmart etc.—has had more effects on retail trade than sales via computer or television.

There can be no quarrel with Graham and Marvin's depiction of urban areas as much more than aggregations of structures bound by traditional linkages. In their view

[23] Ibid, p.227.

[24] Ibid, pp.27-28.

> ...contemporary cities are not just dense physical agglomerations of buildings, the crossroads of transportation networks, or the main centres of economic, social and cultural life. The roles of cities as electronic hubs for telecommunications and telematics networks also needs to be considered. Urban areas are the dominant centres of demand for telecommunications and the nerve centres of the electronic grids that radiate from them. In fact, there tends to be a strong and synergistic connection between cities and these new infrastructure networks. Cities—the great physical artifacts built up by industrial civilization—are now the powerhouses of communications whose traffic floods across global telecommunications networks—the largest technological systems ever devised by humans[25]

What is important are the next questions. Which cities fit best into this new world? Which areas outside central cores will come aboard and which will lag? In short, in an era of choices, who will be chosen and who will be rejected?

We can agree with Graham and Marvin that in this emerging urban world there is an inherent logic of polarization, which seems to be locked into current processes of economic and social development in cities. This polarization is both reflected in, and supported and reinforced by, the development of electronic spaces. Fewer city economies seem set to do well; patterns of economic health become more starkly uneven at all spatial scales; and processes of change seem to reinforce the privilege and power of social elites while marginalizing, excluding and controlling larger and larger proportions of the population of cities. [26]

John Keegan sees the decline of older US cities as inevitable, victims of emerging technologies that shifted the focus of development outward. In his view

[25] Stephen Graham and Simon Marvin, Telecommunications and the City, (Routledge New York, 1996), p.3.

[26] op. cit. Graham and Marvin, pp.378-379

> The old cities have lost their hearts because they were built by people who thought at a foot's pace, journeyed by horse. The vastness of America, for all the heroism of early journeys made by foot or horse into its unexplored interior, demanded other means of motion, the locomotive, the motor car, the airplane, means of devouring space, not of submitting to it. It is the space that surrounds American cities, the interminable distances between them, that have done for small streets and town squares, felled the shade trees, left the porticoed churches standing amid desolation, driven freight yards and interchanges and airport expressways into the order that once was. It could not have been otherwise. Once Americans decided to command their continent from coast to coast, all three thousand miles of it, to have no internal frontiers, to spend a common currency, to obey, often not to obey, a uniform code of law, to recognize a single government, to be one people, the life of the small city, the shape of the pedestrian neighborhood, was doomed. Traveling America confronted settled America and traveling America triumphed.[27]

Keegan overstates his case, particularly when he expresses admiration for a number of old cities that have retained charm and vitality, cities like Charleston and small towns like Annapolis and Stonington, Connecticut. But the thrust of his argument is difficult to counter, particularly in the context of heightened sensitivities to crime and disorder.

Graham and Marvin cite the response of a prominent British urbanist, Richard Rodgers, to the crucial issue of the survival of central cities in an era of social and geographic polarization.

> What, he asked, would be the fate for Britain's cities if a new set of urban ideals, and the mechanisms to achieve them, were not built up to address the growing sense of urban crisis in Britain? Rodgers's response was stark and simple "Blade Runner": "The poor will be ghettoized in their estates, walled in by police and by the barriers of unemployment. The rich will be in their ghettos too, electronically and fortified. Everyone will be separated in his or her own security castle. There will be no society." ...much of what we have found in this unprecedentedly broad review does seem to support Richard Rodgers's rather pessimistic outlook. As part of the ongoing economic, social and cultural change surrounding the shift to post-modern urbanism, telematics do seem to be helping to support the emergence of new, more highly polarised social and cultural landscapes in cities. The truly public dimensions of cities where citizens interact and encounter each

[27] John Keegan, Fields of Battle, (Knopf New York) 1996, p.16.

> other in physical space seems threatened. Urban trends seem to be supporting instead a shift towards tightly regulated private and semi-private spaces--both physical and electronic--oriented towards the exclusion of groups and individuals deemed not to belong. [28]

As one cynic puts it, the information highway is the only highway that doesn't go through the ghetto. (This refers to the fact that in-town roads tend to avoid upper income neighborhoods and seem to be magnetically drawn to slum areas.)

We can reasonably suggest that teleworking will accelerate--give added impetus--to trends that were in full operation before the first computer was unpacked from its crate. What can we realistically expect in the next ten to twenty years?

[28] op.cit. Graham and Marvin, pp.234-235.